

Title (en)  
FILM HAVING EXCELLENT CORONA RESISTING CHARACTERISTICS, AND INSULATED ELECTRIC WIRE, COIL AND MOTOR USING THE SAME FILM AS INSULATING MATERIAL

Title (de)  
FILM MIT HOHER KORONABESTÄNDIGKEIT, SOWIE ISOLIERTER ELEKTRISCHER DRAHT, SPULE UND MOTOR, DIE DIESEM FILM ALS INSULATIONSMATERIAL BENUTZEN

Title (fr)  
FILM PRESENTANT D'EXCELLENTE CARACTERISTIQUES DE RESISTANCE A EFFET DE CORONA, ET FIL BOBINE ET MOTEUR ELECTRIQUES ISOLES AVEC LESQUELS LEDIT FILM EST UTILISE COMME MATERIAU D'ISOLATION

Publication  
**EP 0760282 B1 20050720 (EN)**

Application  
**EP 96903258 A 19960227**

Priority  
• JP 9600456 W 19960227  
• JP 9500310 W 19950228

Abstract (en)  
[origin: EP1454738A2] The object of the invention is to provide a plastic film distinguished in corona resistant characteristic at a low cost without lowering mechanical strength proper to the film, and yet, provide novel insulated wires, coils, and electric motors capable of fully responding to demand for providing electric trains with higher running speed and higher acceleration and deceleration. A film 10 distinguished in corona resistant characteristic according to the invention shown in Fig. 1 comprises a high thermal conductive layer 14 formed by laminating inorganic compound or inorganic material having a minimum of  $2\text{W/m} \cdot \text{K}$ , desirably a minimum of  $6\text{W/m} \cdot \text{K}$ , preferably a minimum of  $15\text{W/m} \cdot \text{K}$ , of thermal conductivity at least on a single surface of a base film 12. Another Example of the inventive film distinguished in corona resistant characteristic provides at least a single surface of the film with a maximum of  $10^{13} \Omega$  of superficial electrical resistance, desirably a maximum of  $10^{12} \Omega$  of said resistance and a minimum of  $10^{14} \Omega \cdot \text{cm}$  of volume electrical resistivity, desirably a minimum of  $10^{15} \Omega \cdot \text{cm}$  of said resistance. Fig. 1 illustrates structure of the inventive film 10 distinguished in corona resistant characteristic, which provides a low-electrical-resistance layer 14 incorporating a predetermined electrical resistance value by way of laminating inorganic compound or inorganic material at least on a single surface of the base film 12. As a result of completing the above structure, the invention provides a novel film distinguished in corona resistant characteristic at a low cost without lowering mechanical strength of the film itself, and in addition, the invention also provides such insulated wires, coils, and electric motors distinguished in corona resistant characteristic respectively incorporating novel insulation material comprising the inventive film.

IPC 1-7  
**B32B 9/00; B32B 7/02; H01B 3/00; H01B 7/02; H02K 3/40; H01B 3/10; H01B 3/02**

IPC 8 full level  
**B32B 3/28** (2006.01); **C08J 5/18** (2006.01); **H01B 3/00** (2006.01); **H01B 3/02** (2006.01); **H01B 3/10** (2006.01); **H01B 3/30** (2006.01); **H01B 7/28** (2006.01); **H02K 3/30** (2006.01); **H02K 3/40** (2006.01)

CPC (source: EP US)  
**B32B 3/28** (2013.01 - EP US); **B32B 9/045** (2013.01 - US); **B32B 27/281** (2013.01 - US); **C08J 5/18** (2013.01 - EP US); **H01B 3/002** (2013.01 - EP US); **H01B 3/025** (2013.01 - EP US); **H01B 3/10** (2013.01 - EP US); **H01B 3/306** (2013.01 - EP US); **H01B 7/2806** (2013.01 - EP US); **H01B 7/2813** (2013.01 - EP US); **H02K 3/30** (2013.01 - EP US); **H02K 3/40** (2013.01 - EP US); **B32B 2379/08** (2013.01 - US); **C08J 2379/08** (2013.01 - EP US); **Y10T 428/294** (2015.01 - EP US); **Y10T 428/2958** (2015.01 - EP US)

Cited by  
WO0060721A1; EP2081278A2

Designated contracting state (EPC)  
DE ES FR GB IT

DOCDB simple family (publication)  
**EP 1454738 A2 20040908; EP 1454738 A3 20090311**; CA 2185337 A1 19960906; CN 1152275 A 19970618; DE 69634941 D1 20050825; DE 69634941 T2 20060420; EP 0760282 A1 19970305; EP 0760282 A4 19990428; EP 0760282 B1 20050720; US 6194665 B1 20010227; WO 9626833 A1 19960906; WO 9626973 A1 19960906

DOCDB simple family (application)  
**EP 04008627 A 19960227**; CA 2185337 A 19960227; CN 96190122 A 19960227; DE 69634941 T 19960227; EP 96903258 A 19960227; JP 9500310 W 19950228; JP 9600456 W 19960227; US 73666096 A 19961025